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The bearing of these facts upon the current theories of degeneration, panmixia, etc., were indicated.

The American eggs ranged in length from 18 mm. to 26 mm., while the shortest and longest European eggs measured respectively 18.5 mm. and 25 mm. The typical American eggs, moreover, had an average length of approximately 21 mm., while the European eggs averaged at least 1 mm. longer.

The ratio of breadth to length, *i. e.*, the ratio of the lesser to the greater diameter, showed much greater sphericity on the part of the American eggs, though also in respect to this feature the American eggs presented a much greater amplitude of variation.

The extremes of variation in shape and color were determined by a process of 'disinterested selection.' After having placed a secret mark upon each American egg, the eggs of both countries (863 American and 863 British) were thoroughly mixed together in a single tray. A disinterested person was then requested to select from the mixture 100 eggs that appeared to him to present extremes of shape variation. If eggs from the two countries were equally variable, of course approximately the same number from each would be selected, and if the American specimens were more variable, more American eggs would be selected. The result was in harmony with the evidence derived from the comparison of length and the ratios of breadth to length. Of the selected eggs, eighty-one were American and only nineteen were English, over four times as many of the former as of the latter.

The same method was adopted for the determination of color variation and with the result that eighty-two of the examples of extreme color variation were found to be American and only eighteen British. It was pointed out that this large proportion of extreme color variation on the part of American eggs was not only interesting in itself, but that when the figures are compared with those representing extreme variation in *shape* the significance of both results is enhanced. Not only is the preponderance of variation among American eggs very obvious, but in both cases, in shape and in color, it is almost precisely the same.

It was concluded that the data, whether gathered from comparisons of length, ratio of breadth to length, shape or color, all point in the direction of a general structural modification.

On the Plankton of Brackish Water. G. W. Field.

Investigations of the Plankton are now being carried on at the Marine Laboratory of the Rhode Island Experiment Station at the Great Salt Pond, near Point Judith, in South Kingston, R. I. It is intended to continue the observations, both summer and winter, for a term of years.

The pond is about five miles long and comparatively narrow. Its area is estimated at 1,500 acres. At the northern end, where the river enters, the water at the surface is quite fresh (specific gravity 1.000); at the bottom it is slightly saline (specific gravity 1.0055). The south end communicates with the sea. The specific gravity of the water at the outlet is 1.025. At points between the north and south ends of the pond are found all intermediate degrees of salinity.

Examination of the number of organisms per litre shows that the number is greatest in those areas where the specific gravity is between 1.008 and 1.020 (*i. e.*, the middle portion of the pond), and that in passing in either direction, southerly towards the ocean, or northerly towards the river, the number diminishes.

The most important constituents of the Plankton, named in order of the number of individuals, are: diatoms and algal débris;

ciliated infusoria; arthropods; (copepods, amphipods; ostracods; decapod larvæ and larval tracheata); rotifers; annelid larvæ; ctenophores; medusæ. In its general character it more closely resembles Haliplankton than Limnoplankton, the marked exceptions being the presence of rotifers and the absence of cladocera.

It has been frequently observed and recorded that copepods come to the surface in vast numbers at night. We have frequently observed that on certain days they are at the surface in equal abundance. Their presence at the surface appears to be independent of light and darkness, or of meteorological conditions, but correlated with the presence at the surface of certain species of diatoms, or of quantities of algal débris; observations confirming the belief that these diatoms and amorphous organic materials are the principal food of copepods and of young decapod larvæ.

Rotifers occur in great abundance during July, August and September, but we have found them at the surface only during the day, and near the bottom during the night.

Cordylophora and a nudibranch mollusc are found in water whose specific gravity never rises above 1.005.

Investigations are now in progress to discover the cause of the phenomena noted by us, that ctenophores and medusæ (*Dactylometra*), which are brought into the pond by the tide, are checked in their growth, and after several months of residence in the pond show but a very slight increase in size. The same causes have possibly resulted in the various species of *Nereis Balanus*, and molluscs described as inhabiting only brackish water, and which differ from similar marine species mainly in their smaller size.

Our earlier methods of plankton collection were by means of fine nets, and by sand filtration of known volumes of water after the method of Henson, Reighard, Sedgwick-Rafter, Peck and others, but these have been superseded by use of the *Planktonokrit*, invented and described by Dr. C. S. Dolley.* The centrifugal method is a distinct advance, and materially reduces the error when dealing with all organisms thus far met with, except the Cyanophyceæ. But with steam power it is confidently expected that enough centrifugal force can be developed to throw out even these.

The machine is particularly valuable as a rapid, sure method for collecting the microscopic plankton, and its use will disclose many forms hitherto rare or unknown. As used by us, the two reservoirs, each of one litre capacity, are filled with water drawn from a known depth by means of a valved tin tube. For control purposes both reservoirs are used. After revolving 2 to 5 minutes the volume of organic matter is read on the graduated tube; the tubes are then unscrewed, and the contents washed out by a pipette and filtered distilled water into a tube of narrow lumen graduated to $\frac{1}{100}$ of a cc. After settling for the necessary time, either with or without treatment with Formalin, the volume is read and compared with the volume noted upon the graduated tube of the reservoir. This is necessary from the fact that certain forms are packed more closely than are others by the centrifugal force. The volume of water is then made 5 cc.; the organisms are distributed evenly by gentle shaking or by a pipette, and the number of individuals of each species is enumerated according to the Sedgwick-Rafter method.

Nocturnal Protective Coloration of Mammals, Birds, Fishes and Insects. A. E. VERRILL.

Much has been written in respect to the imitative and and protective colors of mammals, birds, insects, etc., and the bearing of these facts on natural selection, to which

*Proc. Acad. of Nat. Sci. Philadelphia, May, 1896.